



DNRP GIS TECH TIP: Horizontal Accuracy in Imagery

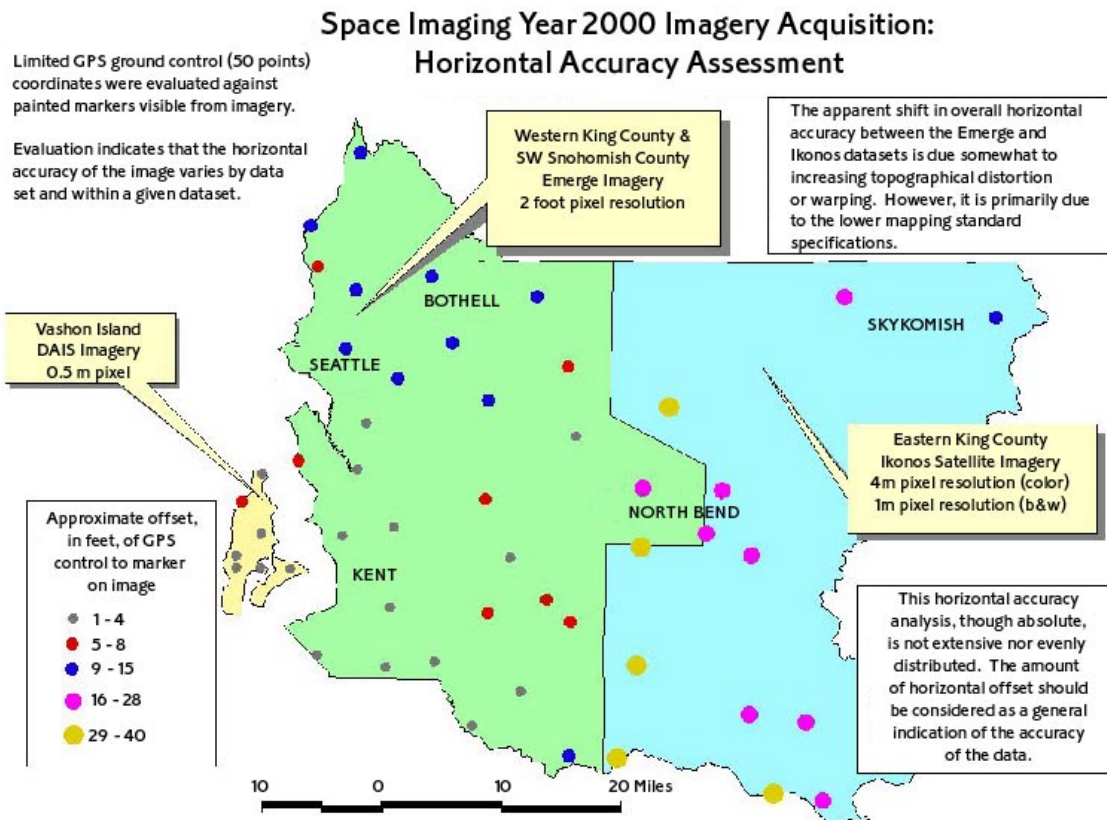
The new natural color imagery that was acquired last year, and made available the past few months on the KC GIS server Wildfire, has a smaller pixel size (ground sample distance) than most of the datasets that have been previously available. The imagery obtained through Space Imaging ranges in pixel size from 0.5 meter to 4 meter, depending on the dataset (for more information about the imagery datasets, consult the DNRP intranet page Color Orthophotography: <http://dnr-web.metrokc.gov/dnrtech/gis/SPproj/ortho.htm>).

Generally pixel size correlates to the degree of feature resolution of the data - a reduction in pixel size increases a viewer's ability to distinguish small individual objects given sufficient contrast. By comparison horizontal, or positional, accuracy depicts how well features in the imagery align to or match absolute coordinate locations (within measurement error) of real-life ground features. Often GPS (global positioning satellite) coordinate data is used to obtain the 'true' or absolute ground location against which the image's depiction of the same feature can be compared.

The pixel resolution or ground sample distance however should not be confused with the horizontal accuracy of the data. Small pixel size (i.e., detailed or high image resolution) does not necessarily imply high positional accuracy.

An image of portion of the earth's surface can be aligned to corresponding points on the earth using georeferencing techniques. The quality of this alignment or registration depends on several factors, these being largely independent of the pixel resolution of the imagery. The imagery may have a very small pixel size (i.e., less than a meter) as compared to the 10 to 30 m pixel size for common satellite images. However, depending on the mapping standard specified for the data collection, this small pixel size does not necessarily correspond to a comparable positional accuracy. Users of all imagery and orthophotography need to be aware of the horizontal, or positional accuracy, of the data they are using. This is significant in terms of referencing the data to absolute coordinates as well as applying these data relative to other spatial, generally vector, themes.

The data acquired from Space Imaging was georeferenced to different threshold standards dependent on which dataset is considered. This accounts for the variation in the horizontal accuracy between the datasets. Variation within a dataset can be due to various factors; thus some areas of an image dataset may have a higher accuracy than other areas. The map on the next page provides a graphical representation of the horizontal accuracy analysis across all three datasets. Further discussion of the horizontal accuracy can be found in the metadata for each dataset in the [King County Spatial Data Catalog](#).



TECHNICAL RESOURCES

For more information about using imagery, consult other DNRP GIS Tech Tips on imagery found in the "Images" folder on the [GIS Tech Tips](http://dnr-web.metrokc.gov/dnrtech/gis/tips/Techtips.htm) (<http://dnr-web.metrokc.gov/dnrtech/gis/tips/Techtips.htm>) intranet page.